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# Federal Reserve Action and Market Reaction

The Federal Reserve has announced two significant changes in monetary arrangements. One, reserve requirements have been extended on certain bank liabilities that were previously exempt from reserve requirements. Two, the Federal Reserve has shifted its attention to movements in monetary aggregates as a gauge for the short-term effects of monetary policy. In addition to these important changes, the Fed announced a full percentage increase in the discount rate.

Financial markets have made dramatic adjustments to the Federal Reserve actions. Interest rates have jumped sharply, while the stock market has sagged. Effects on the economy will not be discernible for some time to come. However, in terms of intention this much is clear. Monetary policy has tightened. The test for the monetarists may be at hand.

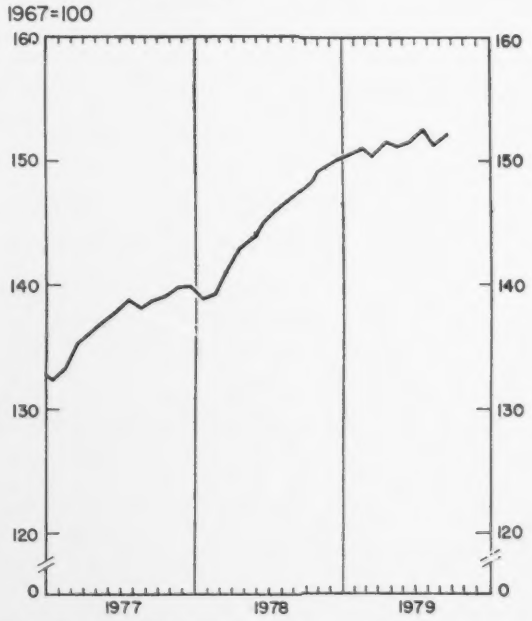
## Changes in Federal Reserve Rules

After three months on the job, Paul A. Volcker, the newly-appointed Chairman of the Board of Governors of the Federal Reserve System, has announced an important series of changes.

First, the discount rate was increased by a full percentage — from 11 percent to 12 percent. The discount rate is the rate of interest charged by Federal Reserve Banks for borrowing by member banks. The chief impact of this action has been on expectations of market participants, businessmen, and others who evaluate economic policy measures. The discount rate increase does not represent a significant cost increase to banks. Member bank borrowing totaled just over $1.5 billion in mid-October — little more than one-tenth of 1 percent of total bank credit. Indeed, a relatively small number of the 14,000 banks throughout the nation ever borrow from the Federal Reserve.

A second action was of substantially greater significance. Reserve requirements have been extended to include Eurodollar and federal funds borrowing by member banks from banking institutions that are not members of the Federal Reserve System. For each $100 of such borrowing a bank must hold an additional $8 in its deposit account at its Federal Reserve Bank. The broad-

*Industrial Production*

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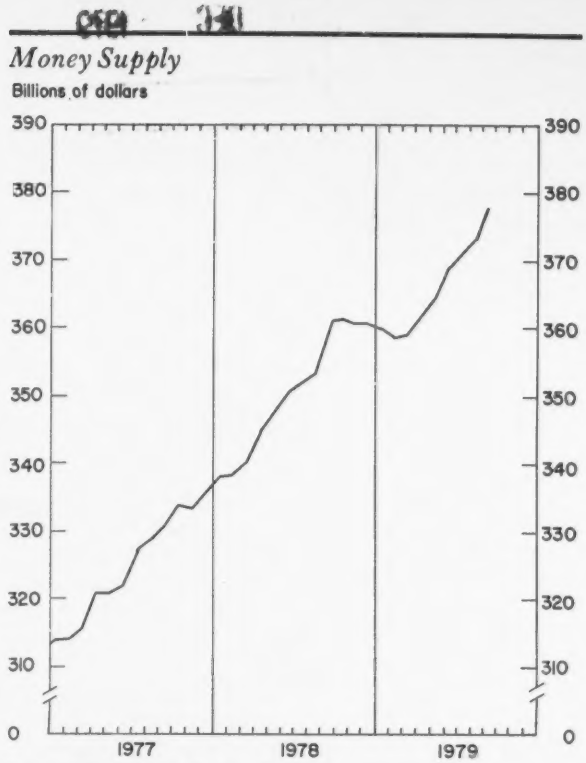
ening of reserve requirements to include Eurodollar and federal funds borrowing has two consequences. One, there is an immediate and substantial increase in the cost of such borrowing. For example, suppose the cost of borrowing prior to reserve requirements were 12 percent. The imposition of an 8 percent reserve requirement raises the effective cost of borrowing to just over 13 percent. Two, and fundamentally more important, by making Eurodollar and federal funds borrowing substantially subject to reserve requirements the Federal Reserve strengthens its ability to control bank liabilities.

The chief monetary effect of reserve requirements is to set an outer limit on the size of bank liabilities. Suppose, for example, that the reserve requirement on bank deposits and borrowings is 8 percent; also suppose that total bank reserves are $50 billion. This would mean that total bank liabilities could reach a maximum of $625 billion (.08 × $50 billion = $625 billion). It also means that when the Federal Reserve expands bank reserves by $1 billion, total bank deposits and borrowing can rise by $12.5 billion.

There is another side to the monetary coin. By limiting the growth of bank liabilities, the Federal Reserve controls the growth in bank credit. Thus, by extending reserve requirements to apply to Eurodollar and federal funds borrowing the Federal Reserve strengthens its control over the volume of bank lending.

The remaining link in strengthening the monetary management process was for the Federal Reserve to reinforce its control over bank reserves. This link was potentially strengthened when Volcker announced that monetary actions would henceforth be geared toward achieving target growth rates in so-called monetary aggregates. Heretofore, short-term Fed operations were directed toward achieving a level of money market interest rates (for example, the interest rate on federal funds borrowing), or toward maintaining rates within a narrow range.

The Federal Reserve pursues its objectives by buying and selling government securities. These purchases and sales are referred to as "open market operations." If the Fed wishes to resist market pressures serving to drive interest rates higher it must purchase government securities. It buys on the open market. By purchasing, the Federal Reserve adds to bank reserves. Conversely, in order to prevent interest rates from falling, the Federal Reserve engages in open market sales, thereby reducing bank reserves.




By specifying this subtle change in its operating strategy, the Federal Reserve may have embarked on a bold new course. If the Fed sets its open market operations to achieve a bank reserves target, it must relinquish control over interest rates. Thus, interest rates move to whatever level the market sets. When the Fed controlled interest rate movements, it relinquished control over bank reserves. That is, open operations were whatever was necessary to achieve its interest rate targets.

## Market Response to Fed Changes

The announcement of new Federal Reserve operating procedures sent reverberations throughout financial markets. During the first week following the policy actions, the Dow Jones industrial average fell nearly 60 points, creating about $55 billion in stock losses. Such a response may suggest that investors were frightened by the prospective adverse impact on the economy of these monetary moves; alternatively, the initial stock market response may be a short-term reaction by those adversely affected by a sharp jump in interest rates. Certainly, rising interest rates increase the costs to those whose market position is significantly financed by debt.

Short-term interest rates have risen dramatically since the Fed policy shift. The prime rate, the rate of interest charged by banks to their most credit-worthy customers, jumped by one-and-one-half percentage points — reach-

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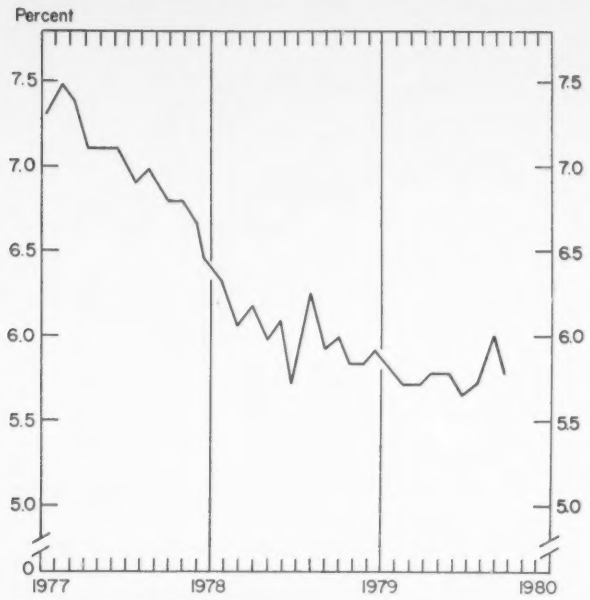
*Unemployment Rate*

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ing 15 percent in late October. Yields on short-term commercial paper and Treasury bills have also risen more than 150 basis points. (For example, a rise from 11 percent to 12 percent is referred to as a 100 basis points increase.)

Longer-term securities have also experienced an important increase in yields. Yields on United States Treasury securities maturing in 3–5 years rose from just over 9.5 percent in late September to about 10.6 percent in late October. Long-term US Treasury securities yields have risen about 75 basis points. Holders of US Treasury securities (or holders of many bonds issued by corporations) receive semiannual interest payments — in an amount determined at the time any particular issue was initially sold by the Treasury to the public. The size of the semiannual payments does not change. Instead, as market interest rates rise, there are declines in the prices of already outstanding securities. Thus, good news to new investors is sour medicine to investors who may have been holding securities for several years.

## Monetary Effects of Fed Changes

It is too early to determine whether the pace of monetary expansion has slowed. In fact, the Federal Reserve actions were not fully implemented until mid-November.

But the background against which change may be judged is clear. From April to mid-October, the narrow money supply ($M_1$) expanded at more than an 11 percent annual rate. The broad money supply ($M_2$), which includes net time deposits in addition to $M_1$, rose at a 12.5 percent rate. Over this same period, business loans at large banks exploded at a 26.6 percent annual rate.

These past rates of expansion of money and credit are extremely rapid. At the same time, the financial system has been extremely inventive in devising techniques by which medium-to-large investors can place their funds into interest-earning assets and, at the same time, maintain ready access to liquidity. Certain money market mutual funds and municipal bond funds are examples of such financial innovations. Thus, while the traditional money supply has been expanding rapidly, its substitutes have also grown at an extraordinary pace.

By the time this piece will have gone to press we will have accumulated several weeks' monetary growth experience. Hopefully, a slowdown will be in evidence.

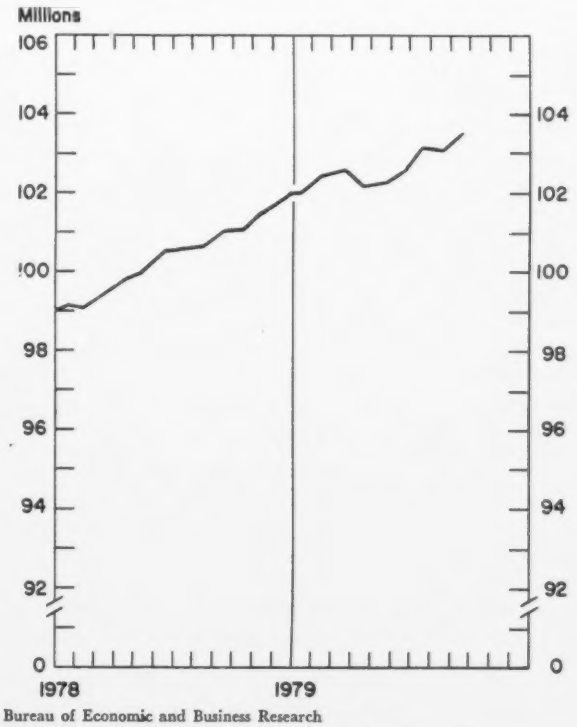
## Monetary Change and the Economy

An extended period of time will be required before the economy will show the effects of the recent monetary change. Certainly, the change was introduced with as much fanfare as can be imagined. Moreover, as indicated, the aftershock on financial markets has been dramatic. In short, the seeds have been sown for a pronounced change in expectations.

For years, monetarists have advocated the type of stance Volcker has taken. The test of monetarist propositions may be at hand. The test, though proposed chiefly by academics, is not taken by academics. Instead, the consequences fall on the population at large — for good or for ill.

WILLIAM R. BRYAN

*Civilian Labor Force*

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# A Description of the Primary Wood-Using Industries in Southern Illinois

The primary wood-using industries of southern Illinois are those that purchase raw forest products. These industries produce lumber, veneer, timbers, cooperage, and dimension stock. The products of the primary industries are frequently used by other firms in the production of finished or secondary forest products such as furniture, wall paneling, packaging materials, and so on.

The data contained in this article were obtained by in-depth personal interviews. All known industries were included in the study.

In 1978, there were 37 primary wood-using firms in southern Illinois. Thirty-two firms were sawmills. In addition, there were two chip mills, a veneer plant, a handle mill, a firewood-processing plant, and a log home assembly plant.

In comparison 30 years ago there were approximately 200 sawmills, 9 container veneer mills, 4 box mills, 2 handle plants, and 4 charcoal plants (USDA Forest Service, Paper 123).

More than half of the firms in 1978 had been in operation under present ownership less than 10 years. This was the first year of operation for one-fifth of the plants. The oldest firm had been in operation 52 years. Two-thirds of the plants, in their first year of operation, began as "new" firms as compared with being purchased from prior owners or having been moved from another location.

Most of the firms were individual ownerships or partnerships. Four firms were part of larger wood-using corporations that were headquartered in surrounding states.

Capital investment varied from less than $10,000 to more than $2 million. Eighty percent of the firms had an original capital investment of less than $250,000, with nearly a third less than $50,000. The size of land area required for the plant and log yard was relatively small. All but one of the plants occupied less than 30 acres, with three-fourths using 10 or fewer acres.

Nearly two-thirds of the firms purchased less than 500,000 board feet of roundwood. Thirty percent of the firms purchased more than 1.5 million board feet. The primary wood-using industry in southern Illinois purchased approximately 45 million board feet of roundwood in 1978. The average purchase volume was slightly more than 1 million board feet. The total volume purchased in 1978 was the same as in 1947.

The firms generally were somewhat selective in the species of timber purchased. Only 12 firms bought both pine and hardwoods. One firm, the log home assembly plant, purchased only pine. The most popular hardwoods were oaks. Two sawmills, producing specific dimension stock (for handles and snow skis), specialized in hickory. Ash and pin oak were also singled out for selective purchase. It was of interest to find a few firms rejecting cottonwood sawlogs, although the veneer mill specifically procured cottonwood veneer logs.

The major source of roundwood was from private ownerships, with three-fourths of the firms procuring all or a portion of their timber supply from private lands. Roundwood delivered by loggers FOB at the mill served as a timber source for half of the firms. Only five firms obtained timber from federal lands, with three of these plants obtaining less than one-fourth of their total supplies via federal sales. Four firms obtained a portion of their roundwood from company lands.

Two-thirds of the firms procured most of their roundwood within the resident county. In a study of the timber buyer in Illinois, it was found that more than half of the timber buyers traveled less than 50 miles, one way, to purchase stumpage.

Three-fourths of the firms purchasing stumpage did all of their own logging, and 16 percent logged a portion of their stumpage purchases. The remaining firms subcontracted the logging of their stumpage purchases. This latter practice is becoming more popular with increases in (1) the costs of workmen's compensation and (2) government regulations.

More than two-thirds of the plants resold some of the roundwood purchases, especially veneer logs and specialty sawlogs. The volume resold varied from 3 percent to 33 percent. However, most firms sold less than 10 percent of their total timber purchases. More than two-thirds of the firms experience a slack procurement period during the winter season when the weather is very cold and wet conditions exist.

When asked "How have your procurement practices changed during the past five years?" the most frequent change given was the foregoing observation that firms were subcontracting their logging and/or purchasing more roundwood FOB at the mill. The second most frequent reply was the yarding of veneer logs and specialty sawlogs for reselling. A fourth of the plants replied that the available timber supplies were becoming smaller in both volume and size. However, one-fourth of the firms planned expansion of the volume of timber purchases.

Two final changes taking place in procurement practices were (1) less residue was being left in the woods due to the increasing demands for wood and firewood; and (2) there were fewer "gypo" loggers because sawmills can pay higher prices by reselling logs to veneer and export buyers.

The most frequent products produced by southern Illinois's primary wood-using industry were railroad ties, rough lumber, pallets, and mine timbers including ties, header boards, and matts. A few firms produced graded lumber, mill blocking, wood chips, and firewood. Specialty products included handle blanks, wood reels, hickory ski billets, veneer lumber, and log homes.

Nearly a third of the plants were limited in daily capacity by the scale and/or age of their equipment. Four firms indicated a shortage in the quantity and quality of available labor as a limiting factor to increased production. When asked "What do you consider the *greatest change* confronting your plant and what do you consider the greatest challenge confronting your industry during the next several years?" half of the firm spokesmen said a shortage of adequate (quantity and quality) timber supplies. Firm spokesmen also listed one or more of the following: (1) RARE II, proposed US Forest

Service wilderness areas; (2) federal and state regulations; (3) demand for products dependent upon an uncertain mining industry; and (4) inflation.

The market outlets used by the firms varied by product. Half of the plants marketed part or all of their products through wholesalers. Railroad ties and lumber were the products most often sold to wholesalers. One-half of the firms sold a portion of their products directly to customers and/or manufacturers, especially pallets and mine timbers. Retail sales were made by less than 5 percent of the plants.

More than 90 percent of the firms, not tied to parent firms, credit "word of mouth" as their major source of customers. Eighty percent relied totally on "word of mouth." Other means used to obtain customers included long-standing contracts, buyers, brokers, advertising, and their own salesmen.

Excluding the firms tied to parent firms, and the two specialty mills, the following market areas were found to exist. (1) Firms producing railroad ties and mine timbers sold their product within southern Illinois (generally resident and neighboring county). (2) More than three-fourths of the pallets were sold in the Chicago area. (3) Lumber was marketed in a 3- to 4-state area.

When asked, "What changes do you anticipate in your marketing practices during the next two years?" two firms' spokesmen indicated their firm planned to expand the variety of products produced through "new" product sales. The small number of responses suggests that the primary wood-using industry in southern Illinois plans no major expansion; but, on the other hand, does not plan major reductions in production.

The primary wood-using industry in southern Illinois in 1978 employed approximately 400 full-time people. The estimated annual payroll was more than $4.5 million. Seventy percent of the firms employed less than 10 full-time employees. Only 10 percent of the firms had more than 30 employees. Over the past five years the number of people employed by the primary wood-using industry in southern Illinois has remained relatively stable.

All but two firms utilized fine and coarse residue. However, only 40 percent of the plants utilized bark residue. The firms generally gave away or sold coarse residue for household fuel and/or the manufacture of fiber products. Thirty of the firms sold coarse residue to the pulp industry. The fine residue was generally given away or sold for mulch, livestock bedding, and so on. Only one firm used residue as a source of energy for operational purposes, other than burning for heat.

It is estimated that approximately 36,000 tons of fine residue and 54,000 tons of coarse residue resulted from the production of the primary wood-using firms in southern Illinois during 1978.

The following conclusions are warranted by the study findings: (1) The primary wood-using industries have a significant financial impact on the economy of southern Illinois; (2) The industry has been relatively stable the past 30 years, relative to raw material purchases, but the number of firms has declined; (3) The type of products manufactured by the industry generally utilizes relatively low-quality timber, with the veneer quality roundwood being resold to firms outside of southern Illinois; and (4) The supply of timber in southern Illinois could support an enlarged industry.

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## *Illinois Economic Indicators*

The Bureau of Economic and Business Research has broadened the coverage of the leading indicator to include the effect of vendor performance. For this reason, the series has been revised for the period of November 1978 to the present. The leading indicator is now based on the following series: layoff rate, new housing starts, weekly hours, and vendor performance.

In the last few months the underlying series have behaved very well given the widespread view that a recession is on the way. Average weekly hours have actually increased on a seasonally adjusted basis from 39.5 hours per week in January to 41.1 in the most recent period. The layoff rate reached its lowest point in 10 years in September 1978 at 0.2 percent and remains now at 0.4 percent, which by comparison even with past periods of prosperity is very low. Housing starts are substantially lower than a year or two years ago, and are the only negative element in the index. We expect that this will worsen in the next few months.

The new element in the index, vendor performance, is at a relatively high level, having dropped a mere 10 percent from a year ago. In January 1975 — a previous slow period — the index was 37 percent below its present level. Overall the index shows the leading elements of the Illinois economy to be performing well.

CHUN-SANG CHEUNG

Illinois Economic Indicators

| Month | Leading Indicator | Coincident Indicator |
|---|---|---|
| Jan. 1979 | 94.2 | 144.3 |
| Feb. 1979 | 94.2 | 142.9 |
| Mar. 1979 | 94.0 | 147.5 |
| Apr. 1979 | 93.8 | 154.5 |
| May 1979 | 93.6 | 159.7 |
| June 1979 | 93.8 | 160.9 |
| July 1979 | 94.3 | 161.5 |
| Aug. 1979 | 94.6 | 161.1 |

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# Local Illinois Developments

The Downstate Teachers' Retirement System has in recent years shown signs of increasing financial soundness, despite demographic factors which are currently working their way through the state's school system.

Of the five major public pension systems, the Downstate Teachers' Retirement is by far the largest. At the end of fiscal 1978 this system accounted for over 55 percent of the total assets of all the state-supported pension systems. The other major pension systems, which are supported in part by appropriations from state funds, include the State Employees' Retirement System, the State Universities Retirement System, the Judges' Retirement System, and the other member of the State Teachers' Retirement System, the Chicago Teachers' Pension and Retirement System.

Under the contributing method of financing state pension funds, contributions to the system are received from the employee and the employer (the State of Illinois). Employees contribute a portion of their salary with the contribution rate ranging from 4 to 11 percent depending upon the pension system and whether or not the employee participates in the federal social security program. Downstate teachers contribute 8 percent of their salary to the Downstate Teachers' Retirement System. The State is then required to pay the cost of an annuity over and above that provided through employees' contributions. The past practice of the State has been to appropriate an amount each fiscal year which is approximately equal to the estimated annual benefits paid by each system. Members' contributions and investment income are then invested with the purpose of increasing the asset base of the system.

Since 1974 total income of the Downstate Teachers' Retirement System has grown at a 15.1 percent average annual rate while total expenses of the system increased at only an 11.4 percent rate. This is quite a turnabout when compared with an income growth of 11.8 percent during the 1970–74 period while expenses were growing at over a 17 percent average annual rate. The main reason for this improvement is that the investment income of this system has grown at a 27.5 percent average annual rate over the past five years.

Another financial improvement of the system is related to its asset and liability structure. The asset base of the Downstate Teachers' Retirement System has grown at an average annual rate of 15 percent since 1974 while the liabilities of the system grew at only 8.9 percent. Viewed another way, while the assets of the Downstate Teachers' Retirement System have continually represented 55 percent of the total assets of the five state-supported pension systems, the liabilities of this system have proportionally dropped during the 1970s. In 1971 the Downstate Teachers' Retirement System accounted for over 65.6 percent of all state pension funds liabilities. By fiscal year 1978 their total liabilities structure accounted for 54.8 percent of the total liabilities of all state-supported pension systems. A related result is that the unfunded obligation of the State (the difference between liabilities and assets) has over the past five years grown at a 4.6 percent average annual rate for the Downstate Teachers' Retirement System compared with a 10.8 percent annual growth rate for all other state pension systems during the same period.

Even though the financial structure of the downstate system has shown improvement, it is believed by some that this system could be in financial trouble in years to come. This concern stems primarily from demographic factors and related legislation.

Enrollment of elementary school children has dropped some 16 percent nationally in the last decade. As the smaller birth cohorts of the mid-1960s have been reaching high school age, high school enrollments have begun to decline. High schools will thus increasingly experience the decreases in enrollment that have been occurring in elementary schools. The effects that this fact will have on the employment of teachers and thus the contributions into the retirement system is uncertain.

In an effort to stimulate the hiring of new teachers the State, as of August 1, adopted legislation which allows elementary and secondary school teachers with 20 years of experience to retire at age 55 without taking a cut in pension payments. The prior law penalized teachers that retired early by cutting the pension for each year not worked before age 60 by 6 percent.

According to the Illinois Education Association, about 6,000 of the state's approximately 110,000 teachers will be eligible for early retirement at the end of the current school year. The Downstate Teachers' Retirement System estimates that the no-penalty early retirement legislation will increase the state's share of the cost by some 1.2 million dollars per year downstate. This increase should have no effect on the state's ability to pay as it

State-Supported Pension Systems, Summary of Financial Data (millions)

| | 1970[a] | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 |
|---|---|---|---|---|---|---|---|---|---|
| Total receipts | $ 298.7 | $ 334.2 | $ 324.3 | $ 418.4 | $ 453.2 | $ 547.9 | $ 599.9 | $ 664.5 | $ 755.0 |
| Total expenditures | 113.9 | 126.7 | 146.5 | 180.3 | 214.7 | 241.7 | 268.3 | 305.2 | 336.4 |
| Asset balance | 1,139.8 | 1,347.3 | 1,525.1 | 1,763.2 | 2,001.7 | 2,307.9 | 2,639.5 | 2,998.8 | 3,417.4 |
| Liability balance | 2,609.6 | 3,785.5 | 4,318.2 | 4,772.5 | 4,852.9 | 5,344.4 | 5,945.3 | 6,486.9 | 7,183.0 |
| Total unfunded obligations | $1,469.8 | $2,438.2 | 2,793.1 | $3,009.3 | $2,851.2 | $3,036.5 | $3,305.8 | $3,488.1 | $3,765.6 |

Source: Office of the Comptroller

[a]Fiscal years 1970–78

Downstate Teachers' Retirement System Financial Data (millions)

| | 1970[a] | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 |
|---|---|---|---|---|---|---|---|---|---|
| Income | | | | | | | | | |
| Member contributions | $ 70.7 | $ 79.0 | $ 90.6 | $ 95.1 | $ 101.3 | $ 112.9 | $ 121.2 | $ 124.5 | $ 132.2 |
| State appropriations | 57.8 | 60.1 | 58.6 | 92.0 | 96.7 | 130.7 | 138.6 | 157.0 | 175.1 |
| Other employer contributions | 1.9 | 2.0 | 2.6 | 2.9 | 3.3 | 3.7 | 4.3 | 4.7 | 5.4 |
| Investment income and other | 27.3 | 36.5 | 40.1 | 42.8 | 45.0 | 65.9 | 76.5 | 93.1 | 118.9 |
| Total income | $ 157.7 | $ 177.6 | $ 191.9 | $ 232.8 | $ 246.3 | $ 313.2 | $ 340.6 | $ 379.3 | $ 431.6 |
| Expenditures | | | | | | | | | |
| Retirement annuities | $ 49.9 | $ 57.7 | $ 68.4 | $ 84.0 | $ 98.6 | $ 111.1 | $ 123.3 | $ 136.4 | $ 149.0 |
| Death benefits | 2.4 | 2.9 | 3.3 | 3.9 | 4.4 | 5.0 | 5.2 | 5.8 | 6.7 |
| Disability benefits | 0.8 | 0.9 | 1.0 | 1.1 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 |
| Refunds | 10.1 | 11.1 | 11.2 | 12.9 | 14.6 | 14.8 | 14.1 | 19.6 | 21.6 |
| Other | 2.4 | 2.2 | 2.3 | 4.6 | 4.2 | 8.4 | 9.9 | 9.7 | 9.5 |
| Total expenditures | $ 65.6 | $ 74.8 | $ 86.2 | $ 106.5 | $ 123.1 | $ 140.9 | $ 154.4 | $ 173.7 | $ 189.3 |
| Total assets | $ 620.1 | $ 722.8 | $ 828.6 | $ 954.9 | $1,078.1 | $1,250.3 | $1,436.5 | $1,642.1 | $1,884.4 |
| Total liabilities | $1,570.5 | $2,483.4 | $2,703.7 | $2,926.9 | $2,790.6 | $2,964.1 | $3,274.6 | $3,518.1 | $3,933.8 |
| Unfunded obligations | $ 950.4 | $1,760.6 | $1,875.1 | $1,972.0 | $1,712.5 | $1,713.8 | $1,838.1 | $1,876.0 | $2,049.4 |

Source: Teachers' Retirement System

[a]Fiscal years 1970-78

will increase its share by less than one percent of current state appropriations to the system.

The Downstate Teachers' Retirement System has yet to feel the effects of either this new legislation or of declining enrollment. If either have an impact on the current financial growth the system is experiencing is a question which we will have to wait to answer.

## Income and Employment Data

Each year the Bureau of Economic Analysis of the US Department of Commerce makes available to the Bureau of Economic and Business Research its estimates of personal income and employment for the counties of the State. The reports give data for the second year before and several earlier years; the recently received 1979 reports include the income and employment data for 1972 through 1977.

The BEA bases its estimates primarily on administrative records of federal and state government programs, with additional information from various censuses or from nongovernment sources. The most important sources are the state unemployment insurance programs, the Social Security Administration insurance programs, and the Treasury Department's tax programs. Census data include surveys that are part of the Censuses of Agriculture and Population.

Personal income is defined as current income of residents of an area from all sources. It is measured after deduction of personal contributions to social security, government retirement, and other social insurance programs but before deduction of income and other personal taxes. It includes income received from business, federal, state, and local governments, households and institutions, and foreign governments. Personal income consists of wages and salaries (in cash and in kind, including tips and bonuses as well as contractual compensation), various types of supplementary earnings termed other labor income (the largest item being employer contributions to private pension, health, and welfare funds), the net incomes of owners of unincorporated business (farm and nonfarm with the latter including the incomes of independent professionals), net rental income, royalties, dividends, interest, and government and business transfer payments (consisting in general of disbursements to persons for which no services are rendered currently, such as unemployment benefits, social security payments, medicare benefits, retirement pay of governmental programs, and welfare and relief payments).

The BEA employment series measures the number of full- and part-time wage and salary employees plus the number of proprietors of unincorporated businesses. The latter includes farmers, independent professional practitioners, nonfarm business entrepreneurs, and others in self-employment status. The employment estimates are generally comparable in quality with BEA's estimates of labor and proprietors' income. They are mostly based on the same data sources and derived by the same general estimating procedures. However, unlike labor and proprietors' income, employment is measured in terms of place-of-work; no residence adjustment is made.

Detailed BEA income and employment data are available for each of the 102 counties and 10 SMSAs of Illinois for 1971 through 1977. A charge of $20.00 will be made for the entire set. A minimum charge of $2.00 will be made for individual county requests totaling 3 counties or less, and $1.00 per county for additional counties requested. A charge of $12.00 will be made for the 1977 transfer payment data for the 102 Illinois counties. BEA farm income and expenditure information for each county in Illinois is also available for $15. Those interested may write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois 61801. Please make check payable to the University of Illinois.

## Government Payments to Illinois Farmers Decline

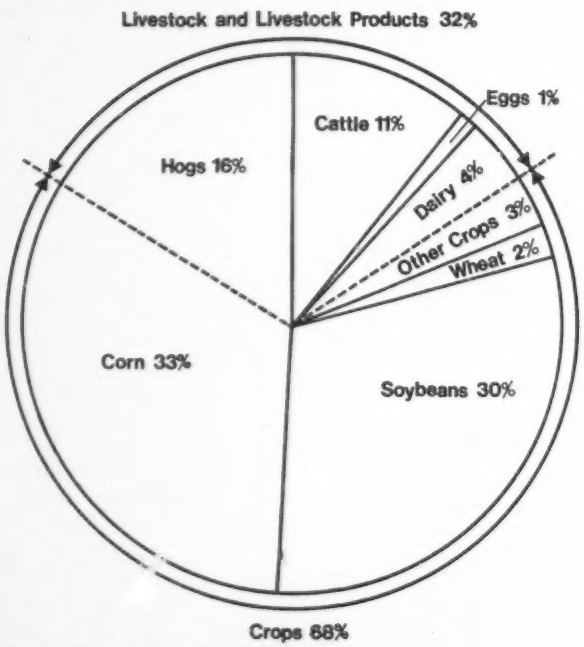
Cash receipts from marketings of crops, livestock, and livestock products are the major source of income for Illinois farmers. In 1977 cash receipts for crops totaled over $3.9 billion, compared with the $2 billion from livestock. Illinois marketings represented over 5 percent of the total US cash receipts for both categories, which puts Illinois fourth among the United States in the sale of all farm products. Illinois was the leading state in cash receipts from corn and soybeans and the second leading state from the sale of all crops. Cash receipts from Illinois crops increased nearly 100 percent in the last decade, while those from livestock rose about 40 percent. The major portion of this increase occurred in 1973 with livestock and crops rising by 22 and 38 percent, respectively.

Recent trends in cash receipts do not present an equally favorable outlook on the incomes of all types of Illinois farms. Cash receipts from livestock marketings rose by 5 percent from 1974 to 1977, but increased by less than 2 percent between 1976 and 1977. Crop marketings displayed a less favorable trend, with cash receipts remaining unchanged or declining between 1974 and 1977.

Government payments constitute another relatively important but declining source of income to Illinois farmers. The government payments allocated directly to Illinois farmers are from farm programs such as the Feed Grain, Wheat, Agricultural Conservation, and Wool Incentive Programs. Over half of the farmers in Illinois are not eligible for government assistance because they do not participate in the land set-aside program, or produce feed grains or wheat (see chart). Government payments, designed to control production, are inversely related to agricultural prices, and hence are sensitive to world market conditions. The increase in foreign demand for Illinois agricultural products in the early 1970s is reflected in the sharp increase in Chicago feed grain prices. Coincident with the price increase is a reduction in the percentage of feed grain production put under government support and a decline in the support price per bushel. For example, the quantity of corn put under support in the US fell from 420 million bushels in 1973 to 77 million bushels in 1974, while the support price fell from 70 to 51 percent of parity. The combined effect reduced government payments to US farmers over 86 percent.

A similar pattern is found in Illinois. While government payments to Illinois farmers totaled nearly $200 million in 1969, by 1977 they had declined to only $32 million. This figure represents less than 30 percent of the 1969–77 average. Government payments to Illinois farmers reached a peak in 1972 at $244 million and fell to less than $10 million in 1974 and 1976.

*Illinois Cash Farm Income by Commodities, 1977*




Source: Illinois Agricultural Statistics, Bulletin 78-4

### County Income Estimates

Farming is more profitable in McLean County than anywhere else in the state. Recent farm income estimates indicate that McLean County generated total farm income in excess of $64 million, followed closely by Livingston, Iroquois, and Champaign counties. Total farm income is derived by subtracting production costs from cash receipts, government payments, and other farm income (imputed income and rent received). Cash receipts from McLean County livestock marketings were over $25 million in 1977, slightly less than the 1969 figure. Livestock marketing receipts averaged $26 million in the last decade, reaching a high of $30 million in 1973 and 1975, and a low of $23 million in 1972. Cash receipts from crop marketings have displayed a significant upward trend since 1973 when receipts totaled nearly $116 million, a 40 percent increase from 1972. Crop receipts were over $164 million in 1977, down nearly 10 percent from 1976.

The declining trend in government assistance to farmers is evident in McLean County. Government payments to McLean County farmers reached a 1972 peak of $5.3 million before plunging to $100 thousand in 1976. On average, McLean County received $4.3 million in government payments annually between 1969 and 1973, and only $200 thousand annually from 1974 to 1977.

Farm income and expenditure estimates for Illinois counties from 1969 to 1977 are now available. A fee of $15 is charged for the entire set with a minimum charge of $2 for requests for five counties or less. Inquiries should be addressed to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois 61801.

SUSAN J. LINZ

# Era Ends in the Telephone Industry

Illinois is unique among the states because every facet of its telephone industry, from research and development of new electronic equipment to warehousing final products, takes place within the State. The direct economic contribution of the telephone industry in Illinois is substantial, yet employment is tapering off as the industry becomes increasingly electronic.

The concept of scale economies is often associated with the telephone industry because there are overhead expenditures which must be undertaken on a certain scale before any service can be provided. The overhead costs of installing the main cables and wires, for example, have the same scale regardless of the subsequent number of phones put in operation. The advantages of expanding productive capacity to increase output at proportionately lower average costs are evident in Illinois. The telephone industry is divided up into companies classified by average annual operating revenues. Of the 54 telephone companies in Illinois, 31 have average annual operating revenues exceeding $250,000 (class A companies), and 17 fall within the $100,000–$250,000 range (class B companies). The remaining corporations are organized on a cooperative basis for the furnishing of telephone services.

## Operating Statistics

The telephone industry is expanding. Illinois telephone companies operated 974 exchanges in 1978 to serve the state's 9.9 million telephones (up from 8.7 million in 1974). Approximately 5.2 million of the state's telephones are main stations (one line serving one telephone) and 4.7 million are extensions. Operating revenues for the entire telephone industry in Illinois total about $2.5 billion, up from $1.9 billion in 1975.

Two firms, Illinois Bell and General Telephone of Illinois, dominate the telephone industry in the State. However, the Illinois Commerce Commission estimates that the remaining class A telephone companies in Illinois operate nearly 340 exchanges and account for over 455,000 main stations. This subset of class A telephone companies generates net income of about $26 million, or $57 per main station annually, and pays Illinois taxes of about $16 million, or $35 per main station each year.

Illinois Bell dominates the more populated regions of the State. Wholly owned by AT&T, it serves over 3.3 million customers with some 8 million phones, and employs over 37,000 people in the State. Operating 229 exchanges, Illinois Bell generates net income of about $243 million, or $57 per main station, and pays Illinois taxes in excess of $15 million annually, or about $3.60 per main station. The entire Bell System — Illinois Bell, Western Electric, AT&T Long Lines, Bell Telephone Laboratories, and Teletype Corporation — employs over 59,000 people and spends more than $2.4 billion a year in Illinois. Total payroll, the biggest single expenditure of the Bell System, reached $1.2 billion in 1978. Purchases ranked second at $586 million, and local taxes third at $250 million. The economic impact of the Bell System in the State is augmented by the dividends that AT&T pays to shareholders in Illinois, which totaled over $202 million in 1978.

General Telephone of Illinois is the second largest telephone company in the State, operating 327 exchanges which service nearly 485,000 main stations and 393,000 extensions. General Telephone generates net income of about $34 million annually, or $70 per main station, and pays Illinois taxes of $2.4 million each year.

Class B telephone companies operate slightly more than 2 percent of the total number of telephone exchanges in the State, to serve about 10,000 main stations and 6,000 extensions. Combining all Illinois class B telephone companies yields a net annual income figure of about $450,000, or $42 per main station. These companies add over $22,000 annually to Illinois tax revenues. Moultrie Independent Telephone Company is the largest class B company in the state in terms of total operating revenues, generating $236,000 in 1978.

The six cooperative telephone companies in Illinois operate 61 exchanges, servicing nearly 22,000 main stations and 13,000 extensions. These companies generate net income of $545,000, or $25 per main station, annually.

## Recent Developments

An era ended in 1978 when the last manual central office in the Bell System was retired and replaced with a modern electronic switching system. Switching equipment is central to the telephone network. It registers the phone number a customer dials and performs the necessary steps to connect the two parties. About 30 percent of the Bell System telephones have been converted from electromechanical to electronic switching systems. Indeed, these new electronic switching systems, manufactured by the Western Electric facilities in Lisle and Chicago, were being installed in 1978 at the rate of about one per day. Their advantages over the older systems include greater speed and reliability, and lower operating and maintenance costs. For example, electronic tandem switching, designed for stored program control, allows large corporations with widely scattered locations to control and monitor their networks from centralized consoles.

Electronic components are the building blocks of the telephone industry. Among the new electronic products is a microprocessor designed especially for telecommunications use. The microprocessor, about one-tenth the size of a postage stamp, contains 7,000 transistors and has the information-processing capability of a computer.

The Bell System has also been conducting a service trial of its lightwave transmission system in Chicago. This system uses lasers and light-emitting diodes to transmit voice, data, and video signals on hair-thin glass fibers.

SUSAN J. LINZ

Comparative Economic Data for Selected Illinois Cities, August 1979

| | Building Permits (000) | | Electric Power Consumption (000,000 kwh) | | Postal Receipts (000) | | Employment (000) | | Estimated Work Force Unemployed (percent) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Aug. 1979 | % change from Aug. 1978 | Aug. 1979 | % change from Aug. 1978 | Aug. 1979 | % change from Aug. 1978 | Aug. 1979 | % change from Aug. 1978 | Aug. 1979 | Aug. 1978 |
| ILLINOIS | $ 161,571[a] | +0.7 | 3,718.4[a] | -1.3 | $ 46,955[a] | +9.4 | 4,898.4 | -3.9 | 4.6 | 6.0 |
| NORTHERN ILLINOIS | | | | | | | | | | |
| Chicago | $ 118,970 | +17.1 | 1,782.1 | -4.2 | $ 36,511 | +12.6 | 3,328.6[b] | +1.8 | 4.4[b] | 5.9 |
| Aurora | 3,584 | -36.7 | 148.5 | -7.4 | 566 | +4.0 | 39.0 | +3.1 | 3.6 | 5.8 |
| Elgin | 3,418 | +229.9 | 97.5 | +6.6 | 563 | -7.8 | 28.5 | +2.1 | 4.2 | 6.2 |
| Joliet | 3,179 | -19.1 | 392.6 | +2.0 | 339 | +6.9 | 47.7 | +2.1 | 4.4 | 5.7 |
| Kankakee | 435 | -52.4 | 78.4[c] | +5.6 | 195 | -10.5 | 37.8[b] | -1.8 | 7.3[b] | 7.5 |
| Rock Island-Moline | 4,715 | +24.9 | 138.3[d] | +6.2 | 1,221 | +9.3 | 110.4[b] | +3.5 | 3.5[b] | 5.3 |
| Rockford | 2,724 | -30.5 | 159.3 | -4.6 | 850 | +4.6 | 133.0[b] | +2.3 | 4.5[b] | 5.1 |
| CENTRAL ILLINOIS | | | | | | | | | | |
| Bloominton-Normal | $ 3,952 | -28.0 | 58.3 | +3.9 | $ 880 | -1.7 | 56.4[b] | -3.4 | 2.7[b] | 3.8 |
| Champaign-Urbana | 1,775 | -52.2 | 62.5 | +8.6 | 594 | +0.5 | 74.7[b] | +7.1 | 3.7[b] | 5.0 |
| Danville | 2,739 | +209.1 | 48.0 | +1.2 | 211 | +0.4 | 19.4 | +3.1 | 6.0 | 7.8 |
| Decatur | 2,935 | -68.2 | 141.4 | +1.4 | 489 | -10.4 | 56.0[b] | -0.7 | 5.6[b] | 9.4 |
| Galesburg | 659 | -28.6 | 32.4[c] | -2.7 | 158 | +10.4 | 15.9 | -1.8 | 7.9 | 6.6 |
| Peoria | 3,784 | -64.2 | 211.5 | -4.1 | 1,361 | +7.6 | 170.8[b] | +0.4 | 3.8[b] | 4.8 |
| Quincy | 1,272 | +36.6 | 47.1 | +6.0 | 214 | +0.4 | 20.0 | -1.4 | 4.6 | 6.8 |
| Springfield | 5,711 | -2.5 | 146.5 | +2.7 | 1,903 | -6.8 | 96.4[b] | -1.5 | 4.5[b] | 5.8 |
| SOUTHERN ILLINOIS | | | | | | | | | | |
| East St. Louis | $ 282 | +297.1 | 27.3 | -11.9 | $ 175 | +1.1 | 23.2 | +4.0 | 11.4 | 12.0 |
| Alton | 535 | -19.6 | 83.9 | -3.3 | 126 | +5.8 | 15.7 | +3.9 | 6.9 | 8.9 |
| Belleville | 472 | -27.3 | 32.9 | -6.0 | 285 | -27.6 | 20.3 | +4.6 | 4.8 | 5.1 |
| Carbondale-Murphysboro | 430 | -8.7 | 40.3 | +4.9 | 314 | +7.5 | 13.7[e] | -3.5 | 7.5[e] | 10.2 |

[a]Total for cities listed. [b]Data for standard metropolitan statistical area. [c]Includes immediately surrounding territory. [d]Includes East Moline.
[e]Data for Carbondale township.

# The World Bank and the International Development Association: Increased Food Production II

ROLAND W. BARTLETT

This is the conclusion of the article of this title published in the October issue of this review.

To become self-sufficient in times of food shortage, a country must have adequate transportation. The World Bank/IDA has given high priority to projects for improving roads, rivers, railroads, and ports for both water and air. In 1978 there were 34 projects in 29 countries centered on improving transportation. Total costs for these in 1978 were $5.1 billion. World Bank/IDA loans and credits for these projects were $1.1 billion or 22 percent of the total.

One project initiated in 1978 forms an important part of the overall development of northern *Cameroon*. It serves several agricultural, industrial, and administrative centers in the country. Another in *Egypt* will increase the depth of the Suez Canal so that by 1980 it will accommodate ships with a gross weight of 470,000 tons drawing water up to 53 feet in depth. A third 1978 project on the *Ivory Coast* will include the improvement of the roadbed of the Regiedes Chemin de Fer, the purchase of locomotives, and provision for maintaining equipment and training facilities for the railroad.

In developing countries, large amounts of capital are necessary to develop industries and services needed for improving living standards. In 1978 the World Bank/IDA had 25 projects in development of finance companies in 19 countries. A total of $1,174 million was made available, four-fifths of which came from the World Bank/IDA. Power distribution lines, road improvements, and water transmission will be provided in *Colombia*. As a result of this project both exports and employment will increase in Cartegena, the capital of one of the country's poorest states. In *Upper Volta* credit and technical assistance to artisans and small and medium-sized enterprises will be provided. In *India* high-priority industrial projects located in low-income areas will be helped financially, which will help increase exports.

Distribution of World Bank Loans and IDA Credits, and Total Costs of Major Projects, 1978

| Major projects | Bank loans and IDA credits (millions) | Total costs (millions) | Percent loans and credits were of total costs |
|---|---|---|---|
| Agriculture and rural development | $ 3,269.7 | $ 13,568.18 | 24% |
| Electric power | 1,146.2 | 5,412.88 | 21 |
| Transportation | 1,092.9 | 5,056.68 | 22 |
| Development finance companies | 909.9 | 1,174.15 | 77 |
| Industry | 391.8 | 1,651.53 | 24 |
| Water supply and sewage | 375.2 | 1,830.97 | 20 |
| Urbanization | 368.6 | 779.72 | 47 |
| Education | 351.9 | 620.64 | 57 |
| Telecommunications | 221.1 | 1,192.0 | 19 |
| Nonprojects | 155.0 | 188.6 | 82 |
| Population and nutrition | 58.1 | 137.5 | 42 |
| Tourism | 50.0 | 242.0 | 24 |
| Technical assistance | 20.3 | 29.8 | 68 |
| Grand total | $ 8,410.7 | $ 31,884.65 | 26% |

Source: World Bank Annual Report, 1978, pp. 28-32, and 72-90.

As a developing country grows, it begins to produce manufactured goods to decrease imports. Eight industrial projects were initiated in 1978 within eight countries. The total cost for these projects was $1.7 billion; the World Bank/IDA loans and credit were about one-fourth of the total.

*Romanian* industries were badly damaged by a March 1977 earthquake. One project of the World Bank in 1978 was to aid in reconstruction, including funds furnishing specialized equipment for a National Center for Earthquake Engineering. In *Brazil* funds were provided for the construction of a plant to produce ethylene, propylene, butadiene, benzine, and other protochemical derivatives. Once in production, this plant will reduce imports of these products.

A safe water supply and an adequate sewage system are necessary to improve living standards. The World Bank/IDA in 1978 had 16 such projects in 14 countries. Total cost was $1.8 billion. World Bank/IDA's share was one-fifth of the total.

In 1978, the World Bank initiated a project to increase production of potable water and improving the water system serving the *Lisbon* region; 2.6 million people including about 300,000 urban poor will benefit from this project.

An IDA project in *Haiti* will rehabilitate and expand the water supply in seven provincial towns benefiting about 155,000 people, most of whom are low-income people.

Cities as well as rural areas need capital to bring about improved living standards. Thirteen projects in 13 countries were granted loans or credit in 1978; total cost was $786 million. The World Bank/IDA gave loans or credit for 47 percent of the total. One project in *Bolivia* will provide essential services in low-income areas of La Paz in construction of five retail food markets, credit to small-scale enterprises, and employment, benefiting around 10,000 families. A project in *Morocco* provides for squatter upgrading, improved employment, and equipment for community service.

Major emphasis on education is important in all countries, particularly those with low incomes. The World Bank/IDA have been giving attention to educational projects which will bring about improvement. In 1978, there were 20 projects for improving education in 20 countries at a total cost of $621 million. World Bank/IDA loans or credits were 57 percent of the total. In *Algeria* civil engineers and technicians were supplied to alleviate the shortage of this personnel; this included a workshop for an expanded network of vocational training centers. In *Honduras* a project to improve the quality of primary education in rural areas and to train specialized people in agriculture and forestry was started.

(Continued on next page)

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(Continued from page 11)

In 1978, curriculum development, teaching aids, and regional centers for adult education was begun in *Somalia.*

Telephones, television, and radios are a prerequisite to improved living standards in developing countries. In 1978 the World Bank/IDA initiated 5 projects in 5 countries. They contributed about one-fifth of the total cost of $1,192 million. In *El Salvador* the installation of additional local automatic telephones, long-distance equipment, and teleprinters in areas currently without service will be made possible. One hundred isolated locations will be provided with local telephone service in *Nepal* with funds from another project. The World Bank is working with the Indian government in a program to add more than a half million lines in India between 1977 and 1979.

Improved living standards for developing countries are dependent, in part, on improved nutrition and family planning. Two World Bank/IDA projects in two countries were started in 1978; the total cost will be $137.5 million, including a loan of $58.1 million from the World Bank.

Illinois Business Indexes

| Item | Aug. 1979 | July 1979 | June 1979 | May 1979 | Aug. 1978 |
|---|---|---|---|---|---|
| Leading indicator (1969=100) | 94.6[a] | 94.3 | 93.8 | 93.6 | 96.3 |
| Coincident indicator (1969=100) | 161.1[a] | 161.5 | 160.9 | 159.7 | 155.8 |
| Employment-manufacturing (in thousands) | 1,240.0[a] | 1,240.9 | 1,254.3 | 1,244.7 | 1,234.5 |
| Average weekly hours-manufacturing | 40.9[a] | 40.5 | 41.0 | 40.6 | 39.9 |
| Weekly earnings-manufacturing | $301.8[a] | $298.1 | $299.5 | $293.2 | $271.1 |
| Layoff rate-Chicago | n.a. | 0.4 | 0.5 | 0.5 | 0.3 |
| Ordinary life insurance sales (in millions) | $1,511 | $1,476 | $1,476 | $1,548 | $1,329 |
| Retail sales (in millions) | n.a | $3,779[a] | $4,011 | $4,090 | $3,742 |
| Coal production (in thousands) | 5,535 | 3,661 | 5,600 | 5,581 | 5,774 |
| Petroleum production (in thousands) | 1,880 | 1,880 | 1,825 | 1,945 | 2,043 |
| Vendor performance (percent) | 55 | 60 | 70 | 76 | 65 |
| Building permits (in thousands) | | | | | |
| Residential housing units | 4.54 | 3.74 | 5.47 | 6.10 | 6.435 |
| Value of residential housing | $191,514 | $162,921 | $234,120 | $240,011 | $252,546 |
| Value of nonresidential housing | | | | | |
| Industrial buildings | $39,031 | $55,019 | $44,102 | $58,435 | $47,995 |
| Office, banks, and professional buildings | $59,559 | $57,941 | $59,636 | $51,624 | $34,010 |
| Stores and other mercantile buildings | $27,375 | $36,932 | $30,894 | $43,665 | $56,984 |
| Other | $111,924 | $98,707 | $38,396 | $61,768 | $32,009 |
| Consumer price index | | | | | |
| North Central US | 120.3 | n.a. | 117.7 | n.a. | 106.5 |
| North Central/population more than 4,000,000 | 121.0 | n.a. | 118.2 | n.a. | 106.4 |
| North Central/population 385,000 to 1,250,000 | 120.5 | n.a. | 118.0 | n.a. | 107.3 |
| North Central/population 75,000 to 385,000 | 119.0 | n.a. | 116.8 | n.a. | 106.1 |
| North Central/population less than 75,000 | 119.5 | n.a. | 116.6 | n.a. | 106.9 |
| St. Louis | n.a. | 216.9 | n.a. | 211.1 | n.a. |
| Chicago | 218.6 | 217.4 | 213.5 | 210.1 | 190.9 |
| Farm prices | 112 | 120 | 118 | 117 | 108 |
| | 1979:I | 1978:IV | 1978:III | 1978:II | 1978:I |
| Personal income (in millions) | $104,625 | $101,770 | $99,795 | $97,371 | $94,325 |

Sources available upon request.
[a]preliminary. n.a. not available.